
GLOBAL HISTORY PERSPECTIVE

CHANGING THE FUTURE WITH THE PAST: GLOBAL ENLIGHTENMENT THROUGH BIG HISTORY

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Ever since humans migrated out of their hearth in east Africa, they have increasingly engaged in global networking, from trade to scholarship. Globalization is an intrinsic aspect of human life, one that has become more and more interwoven with human civilization's ability to survive. This paper reviews the historical process by which humans have developed a unified world-view and then introduces what the authors consider to be the next stage of globalization – the new pedagogical model of Big History. The authors argue that the inclusion of Big History in the world's educational systems is of major importance for resolving the most serious problems that human society confronts; they describe the status of Big History and call for academics to engage in a process of 'Global Enlightenment'.

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Globalization is not new, despite the fact that the world media treats it as a modern, cutting-edge concept. Today, the word is used to market everything from junk mortgages to university degrees. In addition, the concept of globalization tends to mean vastly different things to different professions. The dispersal of oxygen in the atmosphere two billion years ago and the dispersal of microchips in modern computers are both global events, but they result in very different frames of reference for chemists and economists! So, it is helpful to envision three different levels of globalization: 1) Globalization as a human or non-human activity representing world-wide reach; 2) Globalization as a form of human awareness; and 3) Globalization as a form of intentional human action.

The migration of our ancestors beyond east Africa created the initial conditions for global networking. As humans moved into new territories, new resources were discovered and new techniques for processing them evolved. The resulting disparities between ecological and cultural niches led to trade. For example, archeologists have identified ancient trade routes for obsidian in north-east Asia, Baltic amber and Levant chert in Europe, and a variety of resources – from burial styles to copper – in eastern North America. Now, this does not imply a true global consciousness; it means that there was a general sense of 'externality', the first and second levels of globalization.

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Prehistoric societies knew that ‘other ways’ and ‘other peoples’ inhabited the Earth. This vague understanding of a larger world has not changed much today. For example, although 5 billion mobile phones are used worldwide (out of a population of 7 billion people), how many of the callers know that the element tantalum is necessary for the mechanism to function – and from where its ore comes? (Wikipedia 2010: Mobile Phone, Tantalum.) While this knowledge is of importance to engineers and commodity traders, it is not necessary for making a telephone call. Thus, such details are of little day-to-day significance to the majority of consumers in the world. We could say that general global awareness today is not much more elaborate than that of our ancestors' awareness when making chert tools 10 000 years ago!

Some would argue that inhabitants of modern industrialized nations actually have less global consciousness than did their ancestors, not even knowing from where their day-to-day food comes. As Kenyan ecologist Richard Leakey states it: ‘Science and technology have increased our creature comforts, of that there is no doubt, but those comforts may blind us to the reality of the global environment’ (Leakey and Lewin 1995: 248). Nonetheless, globalization is so intrinsic to human identity, whether or not it is a conscious recognition, that we could define ourselves as *Homo globalis*.

So, what is it that moves humans from a primitive awareness of a larger world to an intentional level of global activity? We believe that the difference lies in a consciousness of organized world systems. Indeed, the acquisition of such consciousness has been a challenging process for hundreds of years and is one that is still underway. The development of this worldview can be expressed by revising an aphorism from the Scottish Enlightenment: ‘The past is the key to the future’.¹

Global Historical Consciousness

Since prehistoric times, there have been attempts to create narratives that tell of the world's origin, human development and current events. Usually, 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 are in fact stories of a particular ethnic group and their geographic hearth. Some of these epics then evolve into the story of a ‘chosen’ people, as the victors survive and spread their vision of the world. As a result, the *Eridu Genesis* was lost and only recovered by archeologists in 19th century Mesopotamia, while the Hebrew *Torah* became part of the imperial liturgy of Jews, Christians and Muslims all around the globe.

The first known attempts to develop semi-secular and universal accounts of the world date from Classical antiquity. Although silk and glass were transported between the Roman Empire and China two thousand years ago and speak to trade networks of earlier times, no single merchant is known to have made the entire trip, much less managed the entire transaction. Herodotus, Sima Qian and other scholars compiled such knowledge as they could obtain from merchant travelers. This assemblage of global consciousness was an accumulative process that was closely tied to trade networks.

Despite the fragmentation of the Han Dynasty (220 CE) and the Western Roman Empire (480 CE), other empires' with their traders and scholars succeeded them. The Islamic Empire and the Mongol Empire encouraged trade throughout Eurasia. As merchants took control of longer portions of the trade routes, wider and more accurate

knowledge of global networks resulted: knowledge continued to follow trade. Checks, banks and other instruments of credit are a reflection of this global awareness, as much as the great geographic narratives of Xuanzang, Benjamin of Tudela, Marco Polo and Ibn Battuta a millennium ago.

Europe would have remained a dismal outpost of humanity but for having stumbled on the great resource warehouse of the Americas in the 15th century and all but wiping out its indigenous population with virgin soil epidemics (McNeill 1976; Crosby 2004). As a result of this unexpected booty, Europe shot to the forefront of world commerce. Mercenaries and new armaments backed up colonialism and missionary religion. European dominance was also supported by intellectual efforts, as when Vasily Tatishchev of Russia, Adam Smith of Great Britain and Baron Montesquieu of France wrote in support of European commercial expansion in the 18th century.

Alternative visions developed, but many of these were local and only engaged the larger world at incidental points of contact, as when Aztec/Spanish historian Fernando de Alva Cortés Ixtlilxóchitl (c. 1574–1648) documented his indigenous heritage and its encounter with the Spanish. Such efforts did not have a significant impact on global consciousness until the Enlightenment, when they became tools in the hands of a European middle class seeking to attain more power. In this way, Franco-Swiss philosopher Jean-Jacques Rousseau wrote in 1762 with images drawn from the brutal colonial experience, but generalized them to speak to issues of concern to the European bourgeoisie: ‘L’homme est né libre, et partout il est dans les fers. Tel se croit le maître des autres, qui ne laisse pas d’être plus esclave qu’eux’.²

Although Enlightenment scholars spoke to ‘universal’ concerns of human rights, the application of their philosophy generally excluded women, people of color, the poor and colonials. As mercantilism combined with the Industrial Revolution, new tools aided Euro-colonial dominance around the globe. Nonetheless, the discussion of universal processes had let the genie out of the bottle and a popular discussion of wider human rights ensued. This discourse was aided by an expansion of education, communication and transportation networks, as well as the growth of government and the entry of common people into it. As a result, activities that had existed in remote areas and had been largely ignored suddenly came under public scrutiny and judgment.

For example, the collaboration of African abolitionist Olaudah Equiano with English reformer Thomas Clarkson and English parliamentarian William Wilberforce resulted in the ending of the British slave trade in 1807 and the abolition of slavery in the British Empire in 1833. This public discourse so successfully opened the debate about liberty that English dock workers and textile workers militantly supported the emancipation of American slaves, during the US Civil War (1861–1865), in opposition to powerful British mill owners who supported the Confederate States and slavery for the inexpensive cotton they provided. Even though most of these English workers did not have the right to vote, they saw links between slavery and their own conditions of poverty and powerlessness in Great Britain. Such efforts were then globalized to combat not only similar iniquities later in the century, such as the Belgian regime in the Congo (1885–1908), but they also mobilized reformers on issues in their home society, like women’s suffrage.

Indeed, issues of social reform became so central to debates that policy fractured along lines that are still visible today, not only in Western Europe but around the world. Progressive factions tended to adopt an expanding and inclusive view of society, while conservative factions tried to restrict reform to their own identity groups of class and ethnicity. 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 Marx's work engaged secular reformers.

Western scholars believed that they were assembling a new vision of the world, but in reality it was an elite Euro-centric vision and its cultural limitations were not much different from a Hindu or a Mandarin worldview, or from that of a farmer in the Rhineland or a laborer in Lincolnshire. 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 (Nolte 1975; Bhatti 2008). For example, once Europeans entered Central and South Asia, they began to document similarities between their own languages and some of the new tongues they encountered, such as Hindi (India) and Farsi (Persia). By the 19th century, a body of knowledge had been assembled by European scholars that proposed common linguistic and cultural origins for 'Indo-European' societies from London to Goa and from Moscow to Tehran. Such new global awareness was a direct result of colonialism, as knowledge once again followed trade, but on a much larger scale than had ever occurred before.

As part of this global process, higher education also underwent profound change. At the start of the 19th century, scholars like Alexander von Humboldt integrated history, mineralogy, anatomy and other subjects to create a holistic view of the world (Helferich 2004). However, 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. As this model of education was established in colonies around the world, it became another vehicle for acculturating indigenous peoples to a European worldview (Wallerstein 1984). This occurred, for example, when Chinese scholar Yan Fu (1854–1921) introduced the evolutionary concepts of Darwin and Spencer into Peking University in Beijing (Wikipedia 2010: Yan Fu).

Although the new disciplines were developed in European settings, the sciences allowed for new standards of analysis, with testable hypotheses that could generate new knowledge. In some ways, scientists were one of the first global communities among whom ideas and theories were shared, regardless of nation. This process has been succinctly described for the history of chemistry, but is applicable to all sciences:

...chemical inspiration is not limited to any one culture or climate, but extends all over the globe. World politics dictates the rate of chemical discovery, and chemical discovery changes the politics of the world (Cobb and Goldwhite 1995: x).

Even though academic specialization fragmented the university, it never eliminated the impulse to create an intelligible and holistic narrative of human existence. During

the World War era, such efforts resulted in some very popular works, such as English writer H. G. Wells' *Outline of History* in 1920 and Dutch/American writer Hendrik van Loon's 1921 children's book, *The Story of Mankind* (Daniel Smail, Cambridge, Massachusetts [USA], personal communication [e-mail] to Barry Rodrigue, 2010, August 4). In the academy, German historian Oswald Spengler and English historian Arnold Toynbee also created studies of world civilizations. All of these efforts, however, still emphasized the central role of Western Civilization.

Spengler identified individuals and cultures as being consciously engaged in world dynamics or not, equating such engagement with relevance and success – the third level of globalization. Scholars in other fields and other locations similarly used such planetary yardsticks. Australian socialist Vere Gordon Childe in archeology and French Jesuit Pierre Teilhard de Chardin in philosophy sought to bridge the geographic and cultural boundaries of Euro-centric colonialism. Although the French Annales School of history focused on regional social dynamics, their emphasis on 'total' history and large perspective, as well as identification of trends and patterns, increasingly came to influence studies in globalization.³

After World War II, studies dealing with global issues became more prevalent in university settings, as a way to understand and avoid the situations that had resulted in two devastating world wars. These efforts still served to justify and consolidate Euro-centric worldviews, but they did it from either side of the Cold War and focused on power-relationships in geographic regions and economic markets. In other words, they still had a discipline-bound, 'us' versus 'them' approach. However, new visions began to be added in the 1960s, from ecology and civil rights to gender studies. One of the efforts to bridge ideological divides was a six-volume effort by the United Nations: *History of Mankind* (1963–1968). New content led to new paradigms for viewing the world, which was summed-up by American historian Immanuel Wallerstein, who wrote of the need 'to stop maneuvering in the present with antiquated concepts derived from the past' (Wallerstein 1984: 143).

New Directions, New Paradigms

Biased history is not usually intentional. Rather, it is the result of generations of people thinking in traditional ways, a form of social entropy. American educator Penelope Markle noted this contradiction: 'A great paradox of human intellectual development is that the very act of learning a particular language and its system of organizing thoughts into generalized concepts results in the creation of perceptual limitations: the wonderful potential of human communication comes with a profound and subtle set of cultural blinders' (Penelope Markle, Bath, Maine [USA], personal communication [e-mail] to Barry Rodrigue, Lewiston, Maine [USA], 2010, June 24).

For example, Canadian/American historian William McNeill went through his academic formation in the 1930s and 1940s. He reports that scholars knew that their Euro-centric vision of the world was incomplete and misleading, but institutional habits are difficult to break and the old ways had persisted for generations. Dr. McNeill felt that his education really began only after he received his PhD in 1947, as he and others expanded the view of the 'West' to become one of interconnected global 'webs' (McNeill and

McNeill 2003; McNeill 2010). This has not been a simple transition, as shown by the difficult paradigm shift in American historiography from 'Western' to 'World' studies.

Western Civilization is one of the most widespread and fundamental courses of study in the United States. Begun a century ago, when the United States became an overseas colonial power, 'Western Civ' served as an academic base for American History and was developed in order to promote assimilation and support for elite institutions. Its core theme was that 2000 years of Western European institutions had been brought to perfection in the United States. Such courses do not commonly exist elsewhere in the Western world, but there has recently been a move towards something similar to it in Europe, reflecting development of the European Union.⁴ Although Western Civilization has been liberalized over the years, a culture war has developed with those who believed that such a concept is out-of-date and exclusionary. Gradually, Western Civilization is being replaced with World History, which is promoted by the work of groups like the World History Association (Rodrigue 2010a).

Despite such shifting, scholars and citizens still live under an academic system polarized by centuries of nationalist discourse and decades of the Cold War, as well as more recently supercharged by the so-called 'War on Terror'. Even in the study of international subjects, such as macroeconomics, the orientation is still conflicted – focusing on 'our profits' *versus* 'their profits'. The results of such education can then be seen in the highly competitive life of today's 'real world', from stock market meltdowns to leveraged buyouts. While such 'conflict glue' has been used to hold together power-blocs in the past, the question arises: What can promote global unity in the future? Another adhesive will need to be sought. We do not have to look far to find one: it is ourselves.

When past technologies threatened to destroy the advance of human civilizations, these threats were overcome by social adjustments. Russian social psychologist Akop Nazaretyan developed the Theory of Techno-Humanitarian Balance to describe the process through which human society has resolved its potential for self-annihilation (Nazaretyan 2009: 106).⁵ However, humans evolved two global threats in the 20th century that have not yet been resolved and which still threaten us with annihilation – nuclear weapons and environmental degradation.

The threat of nuclear war persists, not only between the two Cold War antagonists of the United States and Russia, but more urgently between smaller nations that are locked in higher levels of conflict and have acquired nuclear arsenals, like India and Pakistan or North and South Korea. The illegal sale of information, technology and materials for use by those who seek to acquire nuclear capability, both nation-states and private organizations, is also a significant threat – one exacerbated by the disparity in world wealth. Even more threatening is global pollution from nuclear waste that continues unabated, from use of depleted uranium in the conflict zones of the Balkans and Central Asia to the disposal of nuclear submarines in the Siberian Arctic and uranium mining in the Black Hills of North America (New Internationalist 2007; Smith 2003). This latter situation is related to an even more pervasive problem worldwide.

In the last decade, we have become more aware that entire species of life are rapidly vanishing, along with fresh water supplies. Pollution makes parts of the world uninhabitable. Nonrenewable resources are being exhausted. Global warming is impacting the entire planet, from the melting of the world's ice sheets and permafrost to the related rise

in sea levels and changing storm patterns. Local agriculture and business are destroyed by competition from multinational industry, resulting in the vast concentration of people in urban areas, as more and more residents are dropped to the lowest rungs of society. Unlike past crises, the scale of this situation could lead to the end of life as we know it. Regardless of what happens, the world will be a much different place in fifty years, as a result of depleted petroleum resources and its impact on the world economy. As a result of these challenges, American historian Alfred Crosby notes: 'We are in need of a flowering of ingenuity equal to that of the Neolithic or, lacking that, of wisdom' (Crosby 2004: 308).

Scholars within each discipline have addressed these wider concerns and sought to break out of the silos that have allowed such problems to persist (Wallerstein 1991). The situation prompts a great philosophical concern, as expressed by Australian artist John Wolseley: '[A] deep down fear that we have lost our place in the universe by destroying it...' (Wolseley 2001: 34). Although modern studies in world history and geography acknowledge such challenges and postulate solutions, they actually tend to hinder the discovery of solutions to the latest world crises because of their human-centered and nation-based approach. Fortunately, there is a new paradigm, called 'Big History', which does address these problems.

A Discipline of All Existence

Big History is the attempt to understand, in a unified and interdisciplinary way, the history of the Cosmos, Earth, Life and Humanity.⁶ In short, it is an interdisciplinary and scientific survey of all existence, from our origins in the Big Bang to the present and on into future. It includes four components: 1) Cosmology and planetary evolution; 2) Earth sciences and life evolution; 3) Human social development; and 4) Modern global challenges. Most significantly, Big History considers how humans fit into the vast expanse of the Universe (or Multiverse), instead of orienting the Cosmos around humans. It also considers the challenges posed by modern globalization, with an important theme being on the quest to develop sustainable lifestyles. The overall focus is on what such knowledge might mean in our everyday lives and how we should – as responsible individuals and a responsible species – conduct ourselves on this planet... and off of it, as we venture into Space (Rodrigue 2010b: 1).

The antecedents of Big History can be attributed to Enlightenment efforts to unify all knowledge. In this respect, German scholar Alexander von Humboldt (1769–1859) is considered the grandfather of Big History, with his five-volume *Kosmos* being one of the first Big History texts.⁷ Such 'universal' efforts declined with the advent of the modern university and its departmental studies in the mid-19th century. Indeed, the reductionist accumulation of knowledge into strictly demarcated disciplines led to a pervasive distrust of attempts to synthesize information into a larger 'meta-narrative', a problem that persists right up to the present day.

Despite the confines of university infrastructure, scholars soon began to form cross-disciplinary studies to match the new knowledge that they were generating, from electrical engineering to biochemistry. As a result of the scientific and technological activity of the World War and Cold War eras, the vast assemblage of new data soon led to the need for even larger frames of reference. In the 1960s the 'Space Race' between the Soviet

Union and the United States galvanized efforts to develop new interdisciplinary discoveries, while socio-historical scholarship that had sought to understand the post-colonial world underwent similar revitalization.

Soviet scholars developed a version of Big History, which was called Universal History and fit under the Education Ministry's category of 'Conceptions of Modern Sciences' (Nazaretyan 2005a; Grinin, Markov, and Korotayev 2009). One of the first modern books to attempt to describe all of existence was by Russian astrophysicist, Iosif Shklovsky *Universe, Life, Intelligence* (Shklovsky 1962). Four years later an English-language adaptation of this work was produced with American astrophysicist Carl Sagan, *Intelligent Life in the Universe* (Shklovsky and Sagan 1966).

A similar trajectory developed in the United States. American astronomer Harlow Shapley taught a course on 'cosmography' at the Harvard College Observatory from the 1920s through the 1950s, which addressed the interlinked nature of stars, Earth, life and humanity. Dr. Sagan followed Harlow Shapley at the Observatory, where he taught a course on life in the universe. American astrophysicist Eric Chaisson then succeeded to this position and developed a course on Cosmic Evolution with physicist George Field in 1975 (Eric Chaisson, Tufts University, Medford, Massachusetts [USA], personal communications [e-mail] to Barry Rodrigue, Lewiston, Maine [USA], 2010, June 29, 30). This is the first known university course on what could today be considered Big History.

At this point, a variety of science books that were early formulations of Big History began to be published (Cloud 1978; Jantsch 1980; Chaisson 1981, 1987; Asimov 1987; Kutter 1987). Some became very popular: The television series, *Cosmos*, by Carl Sagan (1980) was viewed by over 500 million people in 60 countries, while the book *A Brief History of Time* (1988) by English astrophysicist Stephen Hawking sold over 9 million copies (Wikipedia 2010: Carl Sagan, *A Brief History of Time*).

In this same period of the 1970s and 1980s, socialist and capitalist models coalesced with international studies in an effort to comprehend the many faces of global development. This led to a merger of the Annales Approach with Dependency Theory, which evolved into a World Systems Analysis. German/American economic historian Andre Gunder Frank attempted to move global studies outside of Cold War frameworks and described what he saw as a one-world system (Frank 1978). Immanuel Wallerstein, who also identified a unified world economy, envisioned it as being composed of interlocking systems (Wallerstein 1984). This socio-historic work expanded further and began to merge with larger paradigms, as when Australian economist Graeme Snooks moved his Theory of Global Dynamics Systems beyond the modern era to encompass all of Earth history (Institute of Global Dynamic Systems).

Yet another manifestation of this interdisciplinarity appeared in calls for reform of General Education in universities at this time. In 1985 American Historian John Mears even advocated for what was essentially a General Education curriculum based on Big History – in all but the name (Mears 1986, 2010). In 1989 Anglo/American historian David Christian at Macquarie University in Sydney (Australia) and Dr. Mears at Southern Methodist University in Dallas, Texas (USA) began teaching courses that attempted to span all existence, in the context of history. As Dr. Christian explains, it began with him asking scholars from other disciplines the question: 'When does history begin?' Receiving different answers from biologists, astronomers and others, he realized that stu-

dents were getting confused fragments about their origins from different disciplines. So he sought to 'erase' the 'jagged edges' between these studies and make a course that was more unified. In 1991 he coined the term 'Big History' in a whimsical moment, and the name stuck for many social scientists – natural scientists tend to retain 'Cosmic Evolution' (Christian 1991, 2010; Christian and McNeill 2008; Spier 2005).

The concept spread when Dutch sociologist Johan Goudsblom encountered Big History on a visit to Australia in 1992 and began offering a similar course with anthropologist Fred Spier at the University of Amsterdam two years later (Spier 2005: 1). As a result of this course development, Dr. Spier wrote *The Structure of Big History: From the Big Bang until Today*, which was the first text labeled as Big History (Spier 1996). The field's early promotion was assisted by the support of an earlier generation of global scholars, like William McNeill (Christian and McNeill 2008). Others, such as paleontologist Walter Alvarez, who had long been doing work that fit the Big History paradigm, joined the effort (Alvarez 1997, 2008).

Dr. Chaisson's on-going works serve as standard texts for physical scientists studying Cosmic Evolution: *Cosmic Evolution: The Rise of Complexity in Nature* and *Epic of Evolution: Seven Ages of the Cosmos* (Chaisson 2001, 2006). David Christian developed what has become the standard Big History text for historians and social scientists, *Maps of Time: An Introduction to Big History* (Christian 2004) and then followed it with an audio/visual course *Big History: The Big Bang, Life on Earth, and the Rise of Humanity* (Idem 2007). Cynthia Brown wrote a popularized text, *Big History: From the Big Bang to the Present* (Brown 2007) and, in 2010, Fred Spier brought out his second book *Big History and the Future of Humanity*, which presents a general model for Big History and considers its implications for human society (Spier 2010). Big History has even begun receiving public endorsements from prominent public figures like computer engineer Bill Gates and Nixon White House consul John Dean (Gates and Rose 2009; Dean 2009)!

Besides courses and texts, numerous other formats for presenting Big History also have developed. Because of their long work in the deep history of their professions, Dr. Chaisson and Dr. Alvarez have also become leaders in science education. Both have developed websites that embrace a Big History format in their formulation of time and the Universe: *Cosmic Evolution: From Big Bang to Humankind*, *The Arrow of Time*, and *Chronozoom* (Chaisson 2008; Chaisson and Berry 2007; Alvarez and Saekow 2010). In addition, world academic journals have welcomed articles on Big History, while panels on Big History have been convened at a variety of international conferences.⁸

As a result of the multiple origins of these macrostudies, different emphases and strategies had resulted. The Soviet tradition of Universal History focused on non-equilibrium patterns that incorporated Cosmist philosophy, while other Big History models focused on equilibrium patterns and materialist philosophy (Nazaretyan 2005a; Grinin, Markov, and Korotayev 2009).⁹ These patterns are by no means exclusive and, as a result of global discussions by Big Historians, collaborative views have resulted.¹⁰ For example, after the Russian Academy of Sciences' 2004 conference on *Hierarchy and Power in the History of Civilizations*, an entire edition of the Russian-based, English-language journal *Social Evolution & History* was devoted to Big History and featured presentations of the conferees (Snooks 2005). One of the authors, Akop Nazaretyan,

summed up the popularity of this study, when he restated Marx and Engel's dictum: 'The ghost of Big History is roaming the Earth!' (Nazaretyan 2005b: 264).

Student Impact

Certainly, macrostudies are not new, either in academia or in popular society, and much of the good interdisciplinary scholarship that was used to develop world studies has continued and expanded.¹¹ However, the difference with Big History is that: 1) it uses the entire Universe and Earth as basic reference points; and 2) it uses the scientific process. Indeed, a motto for one Big History course comes from US writer Philip K. Dick: 'Reality is that which, when you stop believing in it, doesn't go away' (Dick 1978, 1995).

Students get the point – we are but one life form in the known universe and we are responsible for whether our species, or at least our civilization, persists or becomes extinct. The introductory course in Big History covers its material in a single semester or academic year (Rodrigue and Stasko 2009: 1). This condensation is intentional, as it forces students to develop a holistic view of their own existence and the existence of the universe at the same time. Since it is based on the latest science and scholarship, students cannot escape into divisive arguments of cultural bias, such as religion or politics. Big History therefore serves as a new, unifying reference point for the world.

The authors teach at a small university in a de-industrialized mill city in northern New England (USA). The average age of our students is 32 years old, while 80 % of them are women. Although some of our baccalaureates do go on to graduate school, even to prestigious universities like McGill and Yale, the majority attend our university to get a professional degree for business or public service careers, and return directly to the workforce in our local region. Nonetheless, Big History has made an impact on even these very pragmatic students. One wrote at the end of her course:

Initially, I had absolutely no thoughts of myself being part of anything larger than this planet. I never gave much thought to my connection to the Universe and everything in it. My belief was that I existed to take care of me and my own... I have come to appreciate those connections that I have found through this course. I have had many profound moments, some that I have shared, some I will keep to myself, and others of such magnitude that there are not really words to adequately describe them. I see my role in the Universe at this moment in time is as a student of the Universe – a learner. I also feel I must maintain the attitude that 'I am probably not Mother Nature's favorite' and, given that, I have no right to grandiose thoughts that place me above any other living thing.¹² I also need to always be on the look-out for nature's lessons, as they may be the most valuable lessons. Being a student of the Universe also requires an appreciation for all the things that nature has provided, to value all of life and the beauty of it (Pease 2010: 6).

What seems to take place is that students become aware just how fragile life is on our planet – how vulnerable we all are. Students pledge to change their lives and work towards the greater shared good of the world. You have to realize that this self-generated commitment is a shocking result in the context of the selfish, consumer-driven society of the United States.

Surprisingly, though, these students also report that they get little exposure in other courses to the serious challenges facing the world today. This reflects the problem associated with professional-oriented education: such degrees tend to focus on providing skill-sets for even more rapacious planetary exploitation, or making such exploitation more tolerable for its beneficiaries. This educational gap does not bode well for public awareness of the planet-shaking issues that we face today. It might be that Big History is one of the few academic programs that can face these global problems and challenge our citizen-students to change the world.

Our students have embraced these transformations. They have created Facebook sites to promote worldwide networking among students of Big History (Facebook: Big History Club 2010). Courses are offered as regular and online classes (or both – in a ‘hyperflexible’ format), so, as a result, online students participate in Big History studies from around the world. Some courses have been included in general education or core curriculum, while sequel courses are being designed.¹³ Courses for Big History are even being adapted for elementary and secondary schools: David Christian and others are developing a high school course for Big History with the Gates Foundation, while continuing education in Big History for K–12 teachers is carried out by the Center for Science Education at Portland State University in Oregon (USA).¹⁴

The process of various disciplines stretching-out to adopt the inclusive paradigm of Big History is very active and serves as a fulcrum to transform education and a vision of our future. These expanded studies include, for example, Scottish historian Michael Cook's *A Brief History of the Human Race* (Cook 2003) and American geographer Denis Wood's *Five Billion Years of Global Change: A History of the Land* (Wood 2004). There are even more grassroots expressions of such humanistic and ecological globalism, which many activists distinguish as ‘mondalization’ in contrast to corporate globalization (Eric Waddell, Québec, Québec [Canada], personal communication [e-mail] to Barry Rodrigue, 2009, August 16), while others refer to it as alter-globalization, bioregionalism or geo-poetics.¹⁵

Our belief is that the large-scale, universal view of Big History can provide a frame of reference for leaders, educators, students and citizens – with respect to the continually shrinking world in which we live. After the meeting of the Russian Academy of Sciences' Fifth International Conference on *Hierarchy and Power in the History of Civilizations* in the summer of 2009, it became apparent that we needed to get a better handle on what was happening with Big History around the world today. So, we assembled a directory of Big History instructors and their courses.¹⁶ The results were surprising: Big History is a lot more active than assumed (Rodrigue and Stasko 2009).

Today there are roughly 50 professors teaching Big History at as many different institutions around the world. While many of these courses are based in English-speaking nations (notably Australia and the United States), they are also being taught in the Netherlands, Russia, South Korea, India, Egypt and elsewhere. The content and audience of Big History has likewise grown in new directions. In some universities, Big History remains part of the astronomy or history curriculum, while in others it has been oriented towards teacher education or is presented as a public lecture series that includes optional academic credit. It has even entered divinity schools! Some of the courses have 400 stu-

dents in them, while others convene as small seminars. Websites, Facebook sites, and blogs abound (Rodrigue and Stasko 2009).

As part of our ongoing work to understand the reach of Big History as a growing discipline, we then analyzed the content of the known Big History courses that were being taught around the globe (Stasko and Rodrigue 2010a, 2010b). In our survey certain current issues were reported in Big History classes. Energy and energy shortages, human conflict, and climate change were presented by most of the professors (70 %). In addition, we obtained feedback from a small number of students ($n = 22$), 40 % of whom reported those topics too, but also mentioned studying issues of poverty, over-population and pollution (Stasko and Rodrigue 2010c). Given recent increases of global environmental disasters, these numbers are likely to increase, as Big History expands to include a broader base of students.

One interesting finding was that students had a different set of desires for information from what the professors provided. The instructors typically focused on ideological and technological globalization, which is fitting for a discussion of social evolution impacted by science and world politics. Yet students seemed more interested (over 60 %) in the social and cultural changes brought on by these events. (*Ibid.* 2010c). Indeed, the changes we see resulting from a historical perspective, as well as the impact of paradigm shifts on the social structure, is often at the heart of Big History.

Most recently, in August 2010, six Big Historians met at the Geological Observatory at Coldigioco, in the Apennine Mountains of Italy. They founded the International Big History Association (IBHA) and developed an ambitious schedule of projects – from producing a journal and website to organizing an international conference in 2012. Although in its initial phases of development, the IBHA promises to become an important vehicle for promoting Big History.¹⁷

A Challenge and Proposal

It is our job as academics to begin transformation towards new models. We, as scholars and educators, must find ways to address global problems using global linkages between ourselves, our students and our communities. It is commonly reported that when our cosmonauts and astronauts went into space, they saw no political boundaries on the Earth and came back confirmed internationalists and activists. It is in this spirit of global endeavor that we educators need to ignite world change by empowering our world citizens with new ideas – in a process that English physicist David Hooke calls ‘Global Enlightenment’ (David Hooke, Liverpool, Merseyside [England], personal communication [e-mail] to Barry Rodrigue, 2009, 19 June, Lewiston, Maine, USA).

The progression of global awareness and global trade has reached a point where the third level of globalization – intentional knowledge and action – needs to be reached by the majority of people on the planet. People need to be aware, not perhaps of tantalum in their mobile telephones, but of the implications of meaningful global networking when using such devices; otherwise the existence of such technology will not be available in the future. As German/American astrophysicist Siegfried Kutter stated it: ‘[W]e must learn to combine the two seemingly contradictory attitudes – modern man's reliance on science and technology and the nomad's maxim of adaptation to the environment – and achieve a new balance in our view of ourselves and our place on Earth’ (Kutter 1987: 546).

It is much more than just grafting new information onto existing studies of globalization, as has been done with Western Civilization in the United States. It is an actual change in structure, a change in paradigm that is needed. We feel that Big History is the natural next step for Globalization Studies and predict that Big History will become the basic course in universities worldwide in the next twenty (20) years. When American educator James Moulton heard the concept of Big History described, his response was: 'Why stop at Big History? – Why not Big Education and Big Political Science!' (Bowdoinham, Maine [USA], personal communication [e-mail] to Barry Rodrigue, Lewiston, Maine [USA], 2009, February 2).

Although universities are generally seen as national institutions, they are actually manifestations of globalized study. The university's focus has tended to be on its 'big' success stories, from sorting out the structure of DNA to its Nobel laureates. However, there is another focus that has been under-appreciated, especially in the realm of globalization – the grassroots transformation of society. We believe that the focus of our attention should be on the majority of students who enrich our communities at their most basic levels – as parents and family members, as citizens, as voters, as volunteers. Therefore, we see a real need for the popularization and spread of Big History in multiple venues and formats as rapidly as possible.

We propose that we engage in building worldwide bridges between ourselves and our students in a global dialogue using the platform of Big History. Furthermore, we propose that we create an inter-university and online 'Institute of Big History/Cosmic Evolution'. We could then encourage students and teachers to take each others' courses and offer a certificate of completion. There is major restructuring underway in the world's universities at this time, so proposals for such efforts fit into the spirit of change. There is a need for such wide views today in every field and subject. It is something that we can do right now. The survival of our species and our global civilization is at stake.¹⁸

NOTES

¹ The view that 'the past is the key to the present' (and the other way around) was a concept enunciated during the Scottish Enlightenment by historian David Hume (1711–1776), as well as by geologists James Hutton (1726–1797) and Charles Lyell (1797–1875).

² Man was born free, and he is everywhere in chains. One man thinks himself the master of others, but remains more of a slave than they (Rousseau 1762: 6).

³ Historian Daniel Smail assesses this process as: 'history in this period got diverted by the periodization schemes proposed by V. Gordon Childe, leading to a lost generation of shallow history' (Daniel Smail, Cambridge, Massachusetts [USA], personal communication [e-mail] to Barry Rodrigue, 2010, August 4).

⁴ A course of study that is called the 'Dutch Canon' was submitted to the Netherlands' government in 2007. It is essentially Dutch History couched in a European context, along with overseas colonial history for locations like Indonesia (Fred Spier, University of Amsterdam [Netherlands], personal communication [e-mail], Barry Rodrigue, Lewiston, Maine [USA], 2009, May 25, June 1; 2010, June 29; De canon van Nederland 2009). Also, four universities joined together in 2008 in order to offer a two-year graduate program in 'European Civilization' in Greece, France and Italy (Marseilles 2008).

⁵ The law of techno-humanitarian balance states that the higher the power of production and war technologies, the more refined the behavior-regulation required for self-preservation of the society.

⁶ This definition of Big History was developed by the International Big History Association in September 2010.

⁷ Fred Spier at the University of Amsterdam first noted Alexander von Humboldt's connections to Big History (Spier 2010: 10). As Daniel Smail at Harvard University points out: '[A]ll universal histories before 1859 were big histories, since they began with cosmology (as it was then understood) and subsequently linked in the human genealogy' (Daniel Smail, Cambridge, Massachusetts [USA], personal communication [e-mail] to Barry Rodrigue, 2010, August 4).

⁸ Three of the academic associations, along with their conferences and journals, which have been very helpful to Big Historians have been the Russian Academy of the Sciences (Russian Federation), the World History Association (USA), and The Historical Society (USA).

⁹ The form of Cosmism discussed in Big History is generally referred to as 'Russian Cosmism', in order to distinguish it from other varieties (Wikipedia 2010: Russian Cosmism).

¹⁰ As an example of the convergence of intellectual thought in Big History, the algebra of the Snooks-Panov Vertical was independently derived by physicist Alexander Panov in Russia and socio-economist Graeme Snooks in Australia. This formulation predicts a 'singularity', the point at which human society reaches a long plateau, until multiple crises are resolved.

¹¹ This argument for interdisciplinarity is similar to that used by physicists in discussions of large-scale science projects. Such collaboration and organizational support certainly makes for difficulty in historiographic analysis, but – as our world problems become more complex – having the ability to look beyond our disciplines and seek wider perspective is crucial (Ashrafi, 2007; Falk and Falk 2007).

¹² Cadrin-Rossignol, Iolande (director). Hubert Reeves, Star Teller. Canadian National Film Board, 2002.

¹³ The sequel course in Big History at the University of Amsterdam is called 'Big Futures', which is also the name of its text, *Toekomst in het Groot* (Reijnders, De Reuver, and Tellegen 2007; Fred Spier, University of Amsterdam [Netherlands], personal communication [e-mail] to Barry Rodrigue, Lewiston, Maine [USA], 2009, May 25, June 1; 2010, June 29).

¹⁴ David Christian, with Craig Benjamin and Cynthia Brown, are developing a high school course on Big History with assistance from Microsoft chairman Bill Gates and his team (David Christian, Seoul [South Korea], personal communication [e-mail] to Barry Rodrigue, Lewiston, Maine [USA], 2010, 29 June). Several scholars and teachers are also engaged in developing programs in Big History for the 'pre-university' levels of education (Rodrigue and Stasko 2010: Duncan; Hendrickson; Brandon Hendrickson, Washington [USA], personal communication [e-mail] to Barry Rodrigue Lewiston, Maine [USA], 2010, June 25). An example of a textbook on *Big History* that is oriented towards this younger group of students is Christopher Lloyd's *What on Earth Happened?: The Complete Story of the Planet, Life, and People from the Big Bang to the Present Day* (Lloyd 2008).

¹⁵ The *mondialisation* movement developed in the Causses region of interior France, especially around Larzac. One of the intellectual sources of this movement came from the French philosophers, Gilles Deleuze and Félix Guattari, who used the horticultural metaphor of a rhizome to describe horizontal and multifaceted links within and between societies (Eric Waddell, Québec, Québec [Canada], personal communication [e-mail] to Barry Rodrigue, 2009, August 16; Deleuze and Guattari 1987, 2004). See, for example, Conway 2006.

¹⁶ The Russian Academy of Sciences' Fifth International Conference on *Hierarchy & Power in the History of Civilizations* was held in Moscow (Russian Federation) on 23–26 June 2009.

¹⁷ The Big Historians who met at the Coldigioco Workshop that founded the International Big History Association, on 20 August 2010, were David Christian of Macquarie University in Sydney (Australia), Fred Spier of the University of Amsterdam (Netherlands), Walter Alvarez of the University of California at Berkeley (USA), Craig Benjamin of Grand Valley State University in Michigan (USA), Cynthia Brown of Dominican University in California (USA), Lowell Gustafson of Villanova University in Pennsylvania (USA), and Barry Rodrigue of the University of Southern Maine (USA).

Barry Rodrigue presently serves as international coordinator for the IBHA and may be reached through his e-mail address (rodrigue@usm.maine.edu). Likewise, until the IBHA website is perfected, the Big History webpages at the University of Southern Maine will serve as a global link for Big History (<http://www.usm.maine.edu/lac/global/bighistory/>).

¹⁸ We appreciate the sharing of thoughts for this paper that came from Penelope Markle, our students, Fred Spier (University of Amsterdam), David Christian (Macquarie University), Eric Chaisson (Tufts University), John Mears (Southern Methodist University), Daniel Smail (Harvard University), Tom Gehrels (University of Arizona, Tucson), David Hookes (University of Liverpool), Eric Waddell (Laval University), and Peter Aicher (University of Southern Maine).

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