

The New Story, the Biggest Picture, and a Little Big History of Flight: A Review of Books by Wendy Curtis

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We look outward and marvel at the expansive beauty of the heavens. We evolved within an evolving Universe. We quest to understand it.

– The Biggest Picture (2016)

Perhaps people have always dreamed of flying as they watched birds and other animals glide and soar through the sky.

– Big History in Flight (2018)

Three decades ago this year, in *The Dream of the Earth* (1988), Thomas Berry wrote, “It’s all a question of story. We are in trouble now because we do not have a good story. We are in between stories. The old story, the account of how the world came to be and how we fit into it, is no longer effective. Yet we have not learned the new story.” From the rest of the volume where his essay, “The New Story,” appeared, it is clear that Berry meant the story of the Earth in the context of the larger story of the cosmos, the story of humanity in the context of geology and ecology, and the duty of the American college to place the story of humans into the largest possible narrative available.

In the summer of 2011 the 20th World History Association (WHA) conference in Beijing included a series of sessions on “big history.” The idea was in the air; a decision had been made the previous summer to form an organization, but it was still in the planning

stages. Floating on a lake near the Emperor’s Summer Palace in Beijing, I sat beside a woman who was one of the most informed, obviously a member of the inner circle of session organizers. I asked her, “Before David Christian coined the term ‘big history,’ where did it begin? Who first understood the narrative we now call Big History?” Without hesitation, Cynthia Stokes Brown, author of a foundational book on Big History, said, “Thomas Berry.” I asked her what he wrote. “*The Dream of the Earth*,” she answered. “That’s probably where the seeds of the Big History movement were sowed.” Back in the United States, I researched Thomas Berry and discovered that he and Brian Swimme had co-written a book called *The Universe Story*, the same year (1988) that Berry had published *The Dream of the Earth*. His remark referring to “the new story” at the beginning of this review was now clear. Moreover, the underlying meaning of Big History was also clear. Big History is Thomas Berry’s New Story.

The earliest group photograph of Big Historians, taken in 2010 at the site of the KT boundary in Gubio, Italy, pictures seven mature scholars, all holders of doctorates in a variety of fields—anthropology, education, geography, geology, history, and political science. The photo is emblematic of what IBHA looked like in its early years—an eclectic, academic, university centered organization with a primary mark of success being the successful introduction of a Big History course at one’s home university. These seven

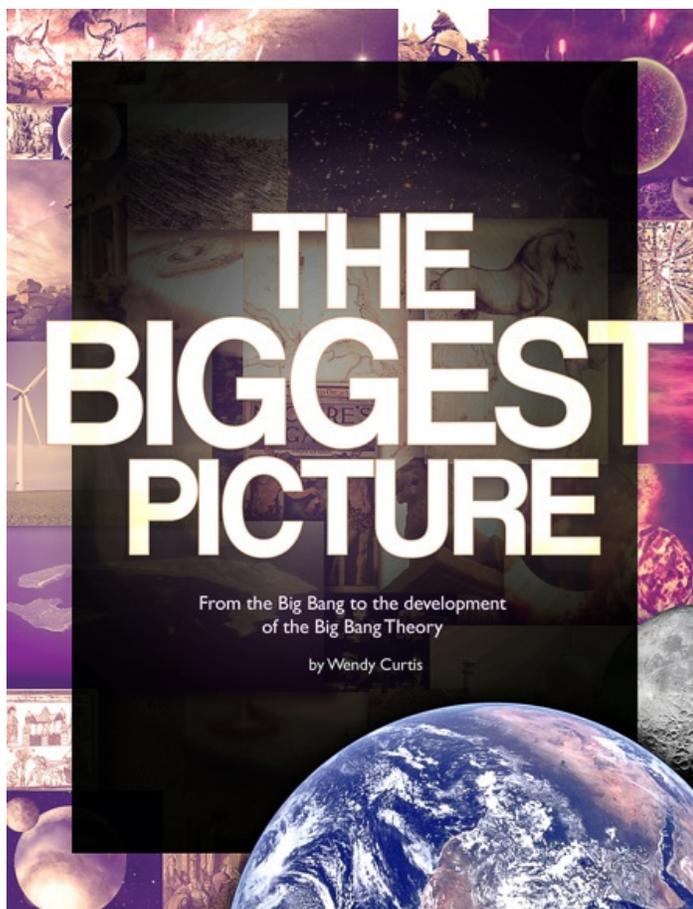
had done it. We should all take up the challenge, and it has been a challenge, as everyone has discovered because no university has a department of Big History, traditional historians do not think history extends earlier than human records, most academics do not appreciate the importance of what big historians are doing, the majority show little interest in expanding their expertise beyond their field of specialization carved out in graduate school, and university administrators put up barriers against what they don't understand.

Consistent with the assumptions of the founders, the 2012 and 2014 IBHA conferences included a strong emphasis on developing a research program which was deemed a requirement for establishing Big History as a serious academic field. But then several unexpected developments added new dimensions. One was the installation of the six-hour Freshman Experience at Dominican University where the 2014 conference was held—an impressive introduction of Big History on an American campus—which required a rapid pedagogical startup for nearly twenty academics who were new to Big History. A second was the rapid development of the Big History Project, a free online course for high schoolers that similarly shifted the emphasis to pedagogy. Third, presentations by Michael and D'Neil Duffy at the early IBHA conferences made clear how the Montessori Method had been introducing something like Big History at the elementary school level for more than half a century. Such developments in the direction of teaching continue. The second volume of the three-volume anthology, *From the Big Bang to Galactic Civilizations* (2015-2017) focuses on “education and understanding.” At the time of this writing a new syllabus from the Big History Institute at Macquarie University is soon to be released; it will include an introduction to Big History at the grade school level. These developments tell us that Big History has broadened its perspective over the past eight years. The major books by Fred Spier, David Christian, Cynthia Stokes Brown, and Walter Alvarez still have the format

of the academic treatise, and the Christian-Brown-Benjamin textbook has confirmed the university-course orientation of the founders: *Big History: Between Nothing and Everything* (2014) resembles standard freshman-sophomore textbooks in required history or political science courses. Undoubtedly this is what McGraw Hill wanted to produce—a text that would look like a standard course text rather than one of the most innovative presentations in the university curricula. The *Journal of Big History* still has an academic, research oriented profile, so far with little in the direction of syllabus expansion. Working out the numerous educational levels Big History needs to address is a work in progress.

It is against this background that heavily pictorial books should be viewed. The most prominent is the oversized coffee-table book. *Big History* (2016) published by DK—copiously illustrated in full color, replete with maps and diagrams, and text closely linked to illustrations. With a Foreword by David Christian, this weighty volume is a professionally produced book with a design we've seen in a dozen earlier DK volumes. I like it, and in fact I have assigned it in my *Cosmic Narratives* course at University of Houston for the past two semesters. I advise students to leave it open on the coffee table, turn over one page each day, and read the two-page spread. This will keep them abreast of what goes on in the class and they will get through most of the volume over a 15-week semester. I also point out that this is not a “textbook” to trade in for pennies on the dollar but rather a permanent keeper for a home library that they will feel called upon to open up again over the years. While I have assigned other texts in former semesters, I'm never convinced that today's students get very far through any primarily-print texts. My feeling is that the DK volume works as well as any—among today's text-shy, visually-oriented millennials.

There is, however, plenty of room for a similar approach that is even more accessible than the DK volume. Wendy Curtis deserves attention for moving beyond the academic treatises of the early founders



by producing a more user-friendly pictorial version of Big History. Her book, *The Biggest Picture* (2016) accomplishes this, and two awards—the Readers' Favorite Book Award and Independent Publisher Book Award—verify the accomplishment. Essentially, she retells the New Story of Cosmos, Earth, Life, and Humanity central to Big History.

I picked up this book and its companion volume, *Big History in Flight* (2018), at the 4th IBHA conference in July 2018 at Villanova University. In format, it's a paperback but has no resemblance to previous Big History books or to a college textbook. In this version of the new story, we plunge in directly, with the opening limited to title and contents pages. There is no preface or prologue, no formal, grandiose introduction signed by the author; instead, we find a few paragraphs against a starlit sky crossed by the Milky Way that introduces the story as a quest for understanding,

a search for origins. The initial impression of the book is of brilliant color. The book is a potpourri of illustrations, some painted, many incorporated from image banks with due acknowledgement of sources. A different color is used for the page edges of its 20 chapters and the colors chosen are bright—flame red, royal blue, forest green, tangerine, etc. Opening the book, one discovers edge-to-edge color with very few pages of print against a white background. Treatment is colorfully expansive rather than boxed between traditional margins. Curtis has chosen the format she wanted rather than one imposed by a publisher; the result looks like the kind of book today's student will want to explore.

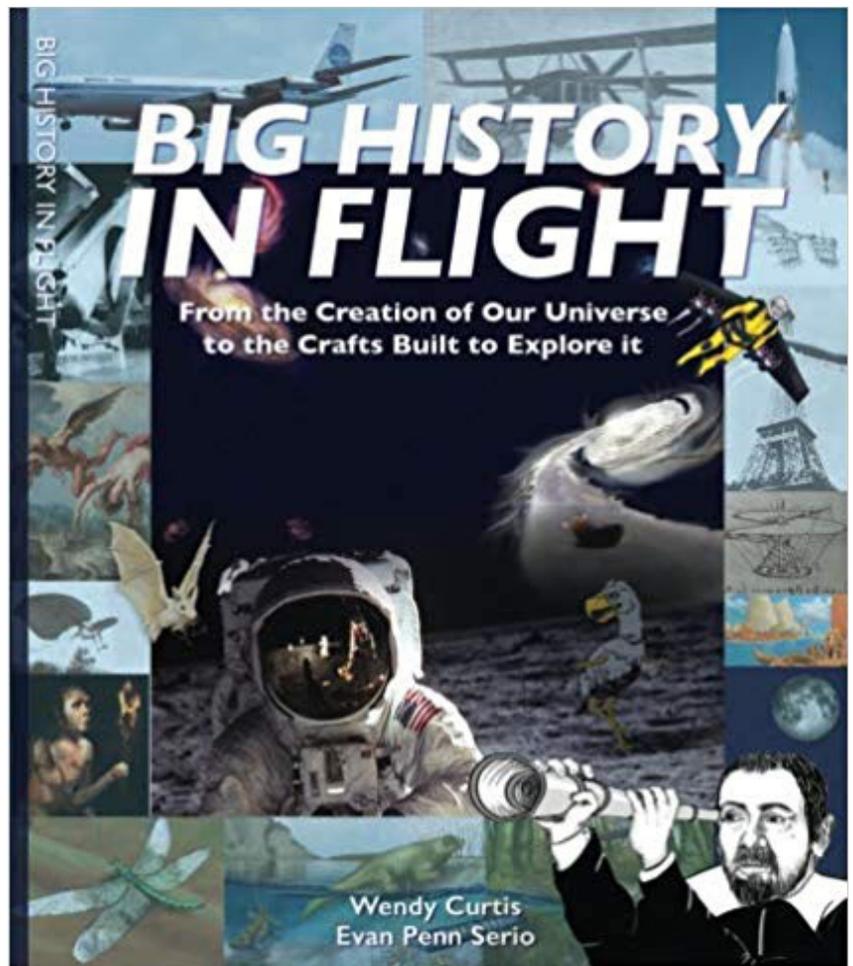
The Biggest Picture begins with a fiery expansion, bouncing particles, the big-bang beginning of things, and it proceeds through the 13.8 billion-year history of the Cosmos, Earth, Life, Humanity, and History all the way to the launching of telescopes and genetic analysis that make Big History possible. Footnotes and references to books in the text are avoided, resulting in a clean presentation; following a trend made possible by electronic storage, notes and footnotes to the volume are available on the backup website—www.GeobookStudio.org. However, a compact and impressive bibliography of around 100 articles and books at the end establishes Wendy Curtis as a thorough researcher and her text as founded on the best that modern science has to offer.

In light of our earlier discussion, *The Biggest Picture* seems ready made for the upper high school student, perhaps as a supplement to the online Big History Project. The images chosen, some borrowed, some artistically rendered for this volume, are explained with clearly written text that never sinks into jargon or obscure scientific theory. The book falls into three sections. The first (Chapters 1 to 6) is largely focused on the cosmic prologue, bring us up to the formation of the Earth. The second (Chapters 7 to 14) covers life on Earth and human emergence up to the development of religion. The third (Chapters 15 to 20) focuses on recent history since the rise of Europe as a colonial

power. Appropriately, the ratio of text to illustration increases in the third section though every pair of facing pages includes some kind of diagram, map, or illustration.

Curtis has an interesting background. As a high school dropout, she had a break in her education, but later completed a degree at Smith College. Her Geology major informs *The Biggest Picture* at many points. Chapter 5, “Building the Planets,” starts out with three paintings of orbiting planetesimals through stages of planetary accretion, a sequence of original illustrations for what is usually simply described. The early Earth, formation of its core and the Moon, and the hardening of the crust of both Earth and the Moon, the development of granite, and emergence of proto-planets are given appropriate space. In Chapter 8, the assembly of the supercontinent Rodinia is treated, a rare topic of discussion; the usual treatment of continental drift and plate tectonics begins with the breakup of Pangea 200 million years ago. But going back a billion years to this earlier supercontinent allows Curtis to discuss the supercontinent cycle and also the Grenville Mountains created by craton collision and their descendants, the American Adirondacks. The flooding of the center of the proto-continent, North America, is pictured—a geological episode responsible for the vast coal reserves of the Midwest and the proliferation of fossils of swamp-dwelling dinosaurs throughout the same region.

Chapter 10 treats the breakup of Pangea in equal detail with dramatic pictures of Africa and India moving north toward a collision with Asia and the resulting crash site—the Himalayas. Woven through this is the demise of the dinosaurs and emergence of primates, survivors of the asteroid strike 65 million years ago. The gigantic explosion of Mount Toba on Sumatra, perhaps the greatest explosion of prehistory, is pictured, along with a resultant genetic bottleneck



during the peopling of the Earth—an interesting connection between geological events and human evolution. With the treatment of Beringia, the land bridge from Siberia to Alaska 20,000 years ago, the dramatic phase of human migration into the Americas is complete. Beringia was the last geological feature that shaped the migration history of humans during the peopling of the world. Thereafter, ocean currents and climate change govern human life, affecting the timing of the agricultural revolution, the to-and-fro of human settlement, trade, imperial conquest, and the rise and fall of civilizations.

In most treatments of Big History, Hubble’s observation of an expanding Universe, the evolution of elements in the stars, and the discovery of the Cosmic Microwave Background (CMB) are treated near the

beginning of the story as proofs for the Big Bang and stellar evolution. Curtis has chosen to place these within the events of modern history, thus clarifying the actual chronology of scientific discovery. She has also chosen to bring her treatment of history right up to date with treatment of the atomic bomb, the development of the Interstate Highway System, the fall of the Soviet Union, the attack of 9/11, and some aspects of the flawed democracy of the United States. The fact that she manages all this in a book just three-quarters of an inch thick is testament to careful selection and the value of *The Biggest Picture* as an introduction to Big History.

Curtis has followed up on her initial success with a second volume, *Big history in Flight* (June 2018), a collaboration with Evan Penn Serio who worked with her on *The Biggest Picture*. It too has earned an Independent Publisher Book Award. Along with her first book, this one has the potential of reaching a very wide audience, particularly of young people, for both develop around the New Story arranged as a carefully designed visual narrative, a necessity we are coming to discover. The industrial-strength 100-thousand-word book with minimal illustration has little effect on today's millennials.

In this second book, the Big History extra-terrestrial context and background—Cosmos and Earth—are condensed into three out of fifteen chapters. Chapter 4 introduces the theme of flight with the emergence of flying insects 320 million years ago. Curtis remarks that winged insects of the Pterygota subclass are “now the most species-rich group of insects on Earth (around 60% of all described species)”; almost immediately she draws attention to the Griffinfly, ancestral to modern dragonflies, which appears in the fossil record 290 million years ago. However flight was independently developed in the line of vertebrates beginning with Pterosaurs of the dinosaur era. With the development of feathers, modern birds evolved with flight providing world-wide dispersal into a huge variety of environments. The result was unusually rapid bird speciation.

With flight appearing with many variations—including flying fish and gliding mammals—the buoyancy of Earth's atmosphere was clear to observant humans. The first sentence in *Big History and Flight* provides the theme: “Before we could fly, we dreamed of flying.” The second half of the book follows the development of flight from the first hot-air balloon flight in 1783 to the development of powered flight in 1903 and the rapid innovations of passenger planes, war planes, and jet-powered aircraft toward the end of World War Two.

Chapter 9, “Explorers Embark,” provides a context that links the explorers of the Age of Discovery with explorers of the sky, a context that Stephen Pyne used in *Voyager: Seeking Newer Worlds in the Third Great Age of Discovery* (2010), a work that presented the Voyager expeditions that began in 1977 as an inspiring adventure of human imagination and ingenuity akin to the discovery of the New World and the circumnavigation of the globe. Curtis' use of this analogy adds a similar imaginative dimension to her story. The following chapter, “Humans Take to the Sky,” ranges from mid-19th century plans for steam-powered airships to take prospectors from New York to Gold Rush country in California (this airship was never built) to a surprising number of pre-flight experiments with balloons, gliders, and wings.

Curtis' meticulous coverage of details of flight from insects and birds to powered aircraft over the past century defines this book as a Little Big History of Flight, though “little” hardly does justice to the lore of flight she has assembled. The final ninety pages, including more than 300 illustrations and photographs, provide a fascinating history of flight enriched with anecdotes of the first trans-Atlantic flights, World War 2 bombings, high-altitude spy planes, the development of aircraft carriers, and the little-known fact that the Empire State Building was designed with a mooring mast for airships.

The connotations of “flight” tend to evoke the conventional airplane—everything from hang gliders and Cessna 152s to B52 Flying Fortresses and

Stealth Bombers. Flight seems to imply riding on the buoyancy of the atmosphere made possible by wings and the Bernoulli Effect. But flight has expanded beyond reliance on the atmosphere. Through the sheer power of the jet engine, we can now put satellites into orbit without the support of wings, lofting humans to the Moon, placing telescopes at balance points for observing deep space, and sending exploratory missions to every planet, numerous moons, and asteroids of the Solar System.

A Little Big History of Flight emphasizes an interesting theme and pattern of the New Story. The triumph of flight in the *Voyager* missions has now extended human exploration into the interstellar space of the Milky Way. While insignificant beside stars the size of Sirius or Vega or our own Sun, the *Voyager* space crafts are a triumph of human enterprise, but in terms of flight they constitute additions to the billions of objects flying in the realm of the stars. Recognizing this, it must dawn on us that the entire Universe is in flight—speeding galaxies, circling stars, orbiting planets, moons, and careening asteroids with our own squadron of orbiting satellites symbolizing the dream of human flight come true. Flight is in fact the motional ground plan of everything in the Universe. Our human versions are thus metaphors for what has been going on across the Universe from the moment the first particles were put to flight from the initial singularity where it all began 13.8 billion years ago.