

“A Big History Perspective”

Cynthia Brown, Professor Emerita, History Department, Dominican University of California

summarized by [Stephen Pitcher](#)

Asked what “Big History” meant to them, participants responded that it meant “How the world began,” or “macro-history.” For Brown, it is history on the biggest possible scale—an evidence-based, scientific origin story, going from the Big Bang to the present. Professor Brown said that four big things had occurred in the Big History field in the last five years. The first involved the participation in 2010 of geologist Walter Alvarez, who thought the approximately forty people then teaching “something like Big History” weren’t incorporating enough geology, and invited six Big Historians, Brown among them, to his geological institute in Italy, where he took them to places where the K-T boundary, the iridium layer, could be seen. A lot of geology was learned and, partially as a consequence, the International Big History Association ([IBHA](#)) was founded. (The initials could not be used in the url as they had already been spoken for by the International Buckskin Horse Association. You can find the website at <http://ibhanet.org/>)

A second development in the field arose from Dominican University’s dissatisfaction with its First Year Experience program. Such programs are taught by many colleges in many ways—emphasizing skills, great books, etc.—and are crucial to enrollment retention. Dominican, in its reworking of that program, decided to require Big History, and to follow up with a second-semester course involving a specific discipline viewed through a Big History lens. Three years later, this approach seems to be working: it has changed the students’ perspectives as well as those of the faculty, who now teach their specialties in the context of the “whole story,” and collaborate to an extent they never would have done otherwise.

A third milestone was Bill Gates’s conversion to the Big History perspective. Gates watches lectures while running on his treadmill and apparently trod through all forty-eight lectures of IBHA cofounder David Christian’s course on the subject. He called Christian and asked for a meeting, saying that he wished he’d had this material in ninth grade—things would have made so much more sense, and he’d have learned so much faster. The upshot of this meeting was Gates’s creation of the [Big History Project](#), which finances high school curriculum development in this field. The project has been used by schools from Korea to Scotland to the U.S., and features, Brown says, “the best curriculum materials I’ve seen in my life.” (<https://course.bighistoryproject.com/bhplive>)

Maria Montessori appears to have been a forerunner of Big History: sequestered in India during World War II (as a possible combatant!), she formulated the idea that children needed to learn that they were “children of the universe.” There is now a movie by that title, which adopts a slightly different, more spiritual vein than the IBHA’s work; but as Brown says, lots of people are telling this story in their own particular way. She recommended the new McGraw Hill college-level Big History textbook to those present as a reference text. The Dominican first-year course is taught largely by faculty in the humanities, though the instructors—including specialists in art history, business, and

nursing—“came from anywhere.” Historians, she said, in some ways have the hardest time with the Big History approach, as they’re so used to seeing history through the details. Some people take naturally to the Big History perspective, despite academia’s ingrained tendency toward specialization, whereas others have major problems with it. It is a tenet of Big History that one *can’t* teach simply human history: first one has to teach how humans evolved; which means having to teach how life evolved; which necessitates teaching how the Earth was formed and ultimately how the universe was made. In short, human history is the history of everything.

Returning to her definition of Big History as a unified, interdisciplinary way of understanding the history of the cosmos, the Earth, life, and humanity, using the best available evidence, Professor Brown termed Big History a “modern origin story.” Calling it that is a fairly provocative maneuver, placing it squarely amid the ranks of countless religious narratives; but that’s what it is, and that’s why it has so much power. The four key ideas embodied in the discipline are:

1. An increasing complexity from the Big Bang to now; the early universe was comparatively simple, with fewer components—hydrogen and helium, the simplest elements;
2. Progress occurs under “Goldilocks” (optimal) conditions: new things have appeared where conditions were just right;
3. The principle of emergence, that new things (e.g., life) had entirely new, distinct qualities;
4. There are perceptible thresholds reached and crossed (Brown warned that students may have to be told that there’s not an *actual* threshold out there, somewhere in New Mexico for instance)

Eight main thresholds are presently recognized by Big History (accompanied here by the specific scholarly discipline associated with them and the approximate time of occurrence):

1. The emergence of the universe (Cosmology)—13.8 BYA (billion years ago)
2. The appearance of the first stars (Astronomy)—13.5 BYA
3. The appearance and proliferation of chemical elements (Chemistry)—from 13.5 BYA
4. The formation of planets and our Earth (Geology)—4.5 BYA
5. The beginning of life (Biology)—3.8 BYA
6. The emergence of the human species (Anthropology)—ca. 200 KYA (thousand years ago)
7. The development of agriculture (Archaeology)—ca. 10 KYA
8. Modernity (History)—ca. 250 YA

The human brain, a product of the journey through these thresholds, is the most complex thing we know of, with the most connections and most energy per mass flowing through it.

Participant: Are we on the verge of a new threshold?

Brown: Most people think so. It's clear we can't continue this way.

Where, in fact, *is* the next threshold (Futurology)? Most important scientists are saying that we have at best ten years to figure out what to do about the global environmental crisis.

Replaying the sequence of thresholds. . .

We begin with a universe appearing, tinier than an atom, incredibly hot, incredibly dense, expanding at warp speed, containing everything in our universe. (No other origin story has anything nearly this crazy.) In the moments following the Big Bang, 13.8 BYA, the hot, dense universe supports only a simple chemistry of hydrogen and helium and some lithium. As the universe cools and expands, conditions for the creation of stars begin to appear—which are born, burn, and die, giving birth to new, more complex elements, before exploding.

Complexity builds through threshold 4 and the Goldilocks conditions leading to the emergence of life and eventually, after threshold 6, to *Homo sapiens*. What makes the human species unique was first thought to be tool-making, but (it being discovered that other animals employ tools) now we say it resides in collective learning—other animals having systems of communication, but not the ability to share knowledge and pass it down the generations. We now feel that human uniqueness—its telltale, emergent difference—lies in our ability to speak symbolically and pass down our collective learning..

Collective learning is exemplified in the human propensity for travel—first from Africa, then into Australia and colder climes, finally all over the planet. (Despite the significance of the post-Paleolithic period, the agricultural energy revolution, *most* human history is Paleolithic, so we should spend more time on that.) Moving through the variously civilized agrarian societies to the dawn of modernity 200 years ago, the question arises, where's it all going? Endless growth and a “global brain”? Collapse? Sustainability? Big History will prepare us for these questions.

Participant: Are kids overwhelmed when exposed to these ideas?

Brown: Sometimes. You can control the amount of information, but the implications of learning where we actually are, what our position is, our situation. . . . Some children feel the end of the world is coming; I think some *hope* it is.

Participant: It's common to get to the end of a course and be somewhat behind; with this course you can get behind a billion years.

Brown: We tend to weight it half pre-human history and half-human history—the students seem to need that.

Participant: Does that confuse them, time-wise?

Brown: Well, at the rate of one page per a thousand years, human history would [strictly calculated] have only three words on the last page devoted to it.

Participant: In terms of Futurology, and all other thresholds deriving from optimal conditions: could the next level be extinction?

Brown: Something more complex and radically new has to emerge if the pattern holds. . .

Participant: One way I've tried to help students make sense of this perspective is to have them write history from another animal's point of view.

Participant: [The influence of contingency:] if dinosaurs had not become extinct, we might never have existed.

Participant: Dinosaurs being less complex were incapable of adaptations implying complexity, whereas we have used our complexity to adapt as a single species globally.

Brown: We travel so much, yet we've remained one species—the sole remaining species on that limb of the branch. At least eighteen hominin species have died out, and they keep finding more: there was a fragment found in the Altai Mountains that was neither *Homo sapiens* nor Neanderthal. Another advantage of learning Big History is that it helps students understand such discoveries—which can't be done without that background.